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ABSTRACT

This paper documents a collaborative effort between faculty members from Pellissippi State Technical Community College (Tennessee) and Northwestern Technical Institute (Georgia) to create and deliver an online class on medical terminology. The following six aspects of the project are described: (1) the collaborative effort, including the viability and benefits of such a joint effort, and the division of course development tasks; (2) faculty training; (3) the design process, including design considerations, and design decisions related to course competencies and course components (i.e., home, syllabus, modules, pronunciation, learning activities, and examinations); (4) hardware and software issues; (5) auxiliary multimedia interfaces; and (6) third-party partnerships related to the use of the Learning Manager software. Lessons learned are listed, and a syllabus format for World Wide Web-based courses is appended. (Contains 41 references.) (MES)

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An Interstate Collaborative Approach to Web-based Instruction

Presented at the Mid-South Instructional Technology Conference

Middle Tennessee State University

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Abstract:

Faculty from two different institutions in different states develop an online course using a variety of multimedia formats to deliver the instructional package including online lessons and examinations, locally produced CD/ROM supplementary material, text and accompanying disk, and third party course management software. The presentation will present an overview of the development process from conception to delivery and will include an online demonstration of the finished product.
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An Interstate Collaborative Approach to Web-based Instruction

Introduction: In November 1997, with the support of the administration in the form of resources and time, several members of the faculty of Northwestern Technical Institute made a conscious decision and commitment to develop courses of study for delivery over the World Wide Web. However, even with significant preplanning, to paraphrase another group of early explorers, "we were blindly going where no one had gone before." Choosing to create an online course with little or no previous experience posed a daunting challenge for the team investigating what we then called alternative instructional delivery. At the outset the Northwestern team consisted of 10 members. Today, three of the original team members have

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persisted and have courses currently on the web.

This paper will document the efforts of two faculty members from different states who collaborated to create and deliver an online class in record time. The class, "Medical Terminology," was developed and brought online in less than one year from initial conceptualization to finished product.

The paper will address 6 aspects of the project:

1. The collaborative effort
2. Faculty training
3. The design process
4. Hardware and software issues
5. Auxiliary multimedia interfaces
6. Third-party partnership

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The Collaborative Effort:

The collaborative effort was between faculty members from Pellissippi State Technical Community College in Knoxville, Tennessee, and Northwestern Technical Institute in Rock Spring, Georgia. These two institutions are approximately 150 miles apart; they were drawn together by a series of chance encounters that resulted in this project. The faculty member at Pellissippi State is the Department Chair of the Office Technology Program and had some familiarity with web-based instruction, having created a class using html coding.

The second instructor is the chair of the Nursing and Allied Health Department at Northwestern Technical Institute and, prior to this effort, had never created any document for online use. Essentially both developers were relative novices and so began the process with a relatively steep learning curve facing them.

The event that drew the two faculty members together was a piece of software to manage online courses that was being considered for purchase. The software, a course management software application called "The Learning Manager," was being used at Pellissippi and was being implemented at Northwestern. Through various interactions with the software vendor, Ms. Bryant and Ms. Grant were innocently thrown together and, as fate would have it, discovered common interests and ways in which they could help each other.

Pellissippi wanted to offer a course in medical terminology for their office technology students but, lacking any health programs on campus, did not have the curricular expertise to develop the course. Northwestern wanted to offer an existing medical terminology class on the web to facilitate student scheduling and to support another statewide Internet initiative but did not have the technical expertise in the Allied Health Department to develop the course.

At the first exploratory meeting between the two colleges, faculty and administrators worked to determine the viability of such a joint effort. Once it was determined that there were no accreditation issues, that the faculty agreed upon the competencies and text to be used, and that the course could be developed so that it could be taught as a semester course or a quarter course, the only thing left to do was begin work.

At a second meeting the course development tasks were divided among the two institutions. Northwestern was charged with developing the instructional modules and dealing with content issues. Pellissippi was

charged with integrating the course design into an existing web management software application and integrating the examination files into the course management software.

As the respective developers worked out the details of creating an online course, an added benefit surfaced when it was realized that the course could be managed from either institution. This meant that when Northwestern was offering the course from its campus, students from Pellissippi could also enroll. And similarly, when Pellissippi offered the course from its campus, Northwestern students could enroll. This solved a problem that both institutions had been faced with in the past: having to offer a class to a small number of students at a financial loss to the institution.
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Faculty Training:

Faculty training was an important issue early on since, even though one of the developers had experience using html, the other developer was a complete novice. The problem was how to best use the technical expertise and curricular expertise of these two individuals.

The learning curve included developing a mastery of new software; working through instructional strategy issues, many of which were discovered as a part of the instructional design process; and discovering new ways to demonstrate skills to a remote audience. In hindsight and in the best of all possible worlds, additional time and training in the use of software products would have been very beneficial to all involved. In fact, to ensure success and minimize attrition, early education and training is essential.

As Denise Grant of Northwestern was the content expert, the task of developing the instructional modules fell to her. Grant began with the existing medical terminology class and proceeded to re-package it for delivery on the web. This required learning how to use a piece of software created for the development of web pages. Microsoft FrontPage 98 was chosen because it was available, relatively simple to use, and compatible with other software used at both institutions. As time passed, she was also required to learn to how to program using html. Northwestern provided some instruction in the use of the software and provided released time for the development of the class. Gaye Bryant of Pellissippi was the technical expert and as such worked with Grant to ensure an understanding of the course management software. Bryant also managed the process of installing test files and test data banks in the Learning Manager.

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The Design Process:

The design process was agreed upon over a period of several months and took advantage of the experience and knowledge of several other faculty from both institutions who were also working on web classes.

In the planning phase, Ms. Grant as a member of a design team of faculty and staff at Northwestern and Ms. Bryant set about the task of creating a framework around which their web-based course could be developed. Design team members from both institutions were guided by the following considerations.

Alternative delivery courses should provide for asynchronous instructional delivery.

- Alternative delivery courses should be available on demand
- Alternative delivery courses should include e-mail in the communication protocol
- Alternative delivery courses should provide for the participation in labs from remote sites.
- Alternative delivery courses should allow for simulation.
- Alternative delivery courses should include all aspects of the course of study or supplements to the

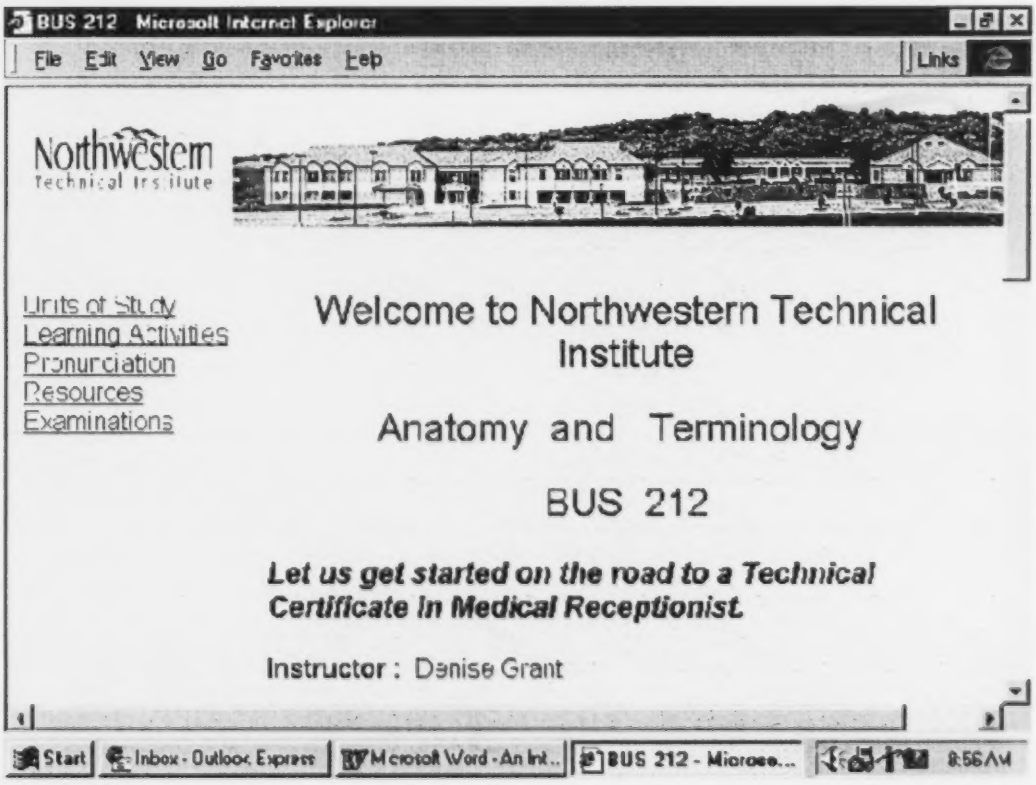
course of study that are made available to the student in a traditional class.

In addition to the considerations listed above, the Northwestern design team agreed upon the following design decisions. This was based upon a review of the available literature on the design of web based classes. These design considerations were also discussed and adopted by the developers at Pellissippi.

1. Each online course would contain the same level of academic rigor as a traditional course.
2. A common format-i.e.,"look and feel" would be used by all developers.
3. A common software application would be chosen and used by all developers.
4. Course development would be modular.
5. Each course would be offered online to an in house class in a pilot phase before publishing the course to the web.
6. Each online course would contain the same or at least very similar learning activities.
7. The syllabus format would be as similar to the traditional course as possible. (See syllabus format for web classes in Appendix A.)

Web-based courses, it was learned, are very much a sum of many parts. Of these many parts there are at least two organizational decisions that a developer must make when creating a course for the web. One decision deals with the treatment of educational outcomes or the organization of competencies that the student will be required to learn or master. One of the early decisions made was that the course design format would be modular. The second decision revolves around the creation of the various course components such as units of study, learning resources, simulations, learning activities, assessment, etc. (See figure A.)

FIGURE A



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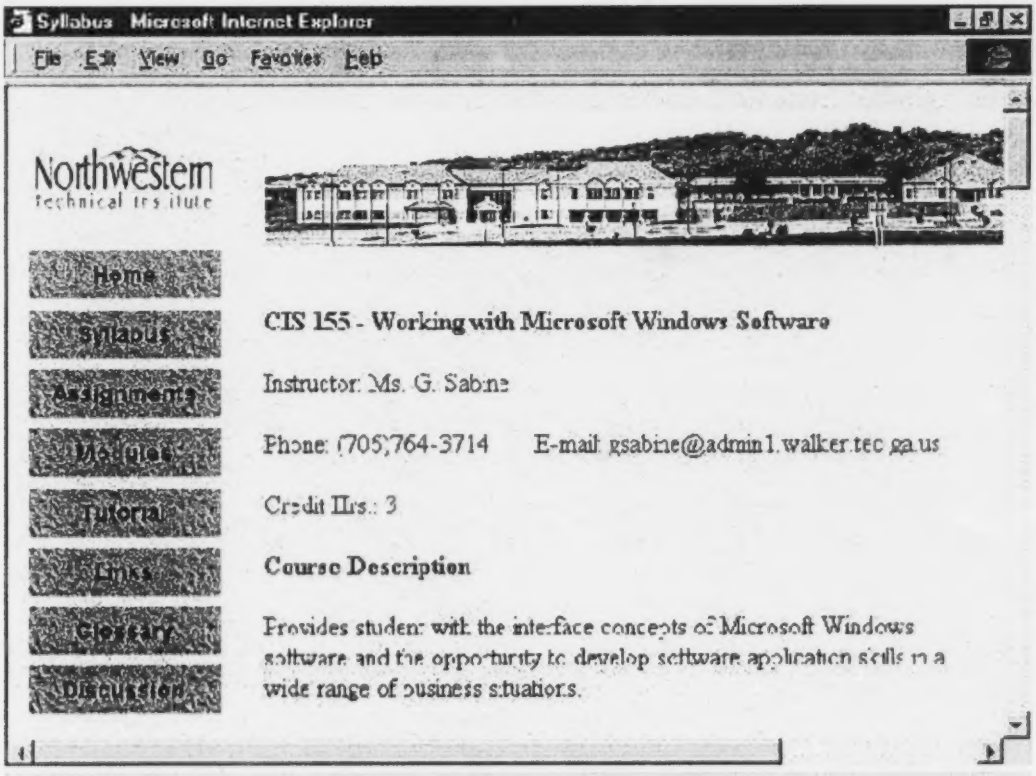

Grant and Bryant chose to deal with the course competency areas in the form of instructional modules. The competencies were the same as those taught in the traditional class. Modules were arranged to match the academic calendar. For this particular course a minor adjustment was required as Northwestern is on a quarter calendar and Pellissippi is on a semester system. However, because the course was developed in modules, it was a simple problem to resolve. The calendar of learning activities had both a semester option and a quarter option.

Each of the modules consisted of a self-contained instructional package including goals of the module, specific learning objectives, various types of learning resources, and assessments. By design, students were forced to satisfactorily complete a module before moving on to the next.

The components of this course differed somewhat from those of other developers, but each developer did adhere to a mutually agreed upon course template, course design format, and page format. Typically, however, all initial web courses developed consisted of units of study or modules, both online and off-line resources, learning activities, and examinations. The specific components of this course are described below.

- Home - This button brings you back to this page.
- Syllabus - This page contains a copy of the course syllabus.
- Modules - This is the backbone of the course. BUS 212 is broken down into 16 modules each containing a number of objectives. The student must successfully complete one module to progress to the next. At the end of each objective, a button exists that will link the student to the next objective. If at any time the students become lost, they can click the Module button on the side of every page and it will bring them back to the beginning. Upon completion of each module the student will be required to complete a test. Students who do not successfully complete the test may trace back through the module until they are able to successfully complete that module's test.

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Resources – This page contains online resources and URL hyperlinks.

- Pronunciation – This page links the students to a CD disk developed by the college and supplied to the students when they register for the course. It is a vocabulary list and aural pronunciation guide corresponding to each module.
- Learning Activities – This page is a set of activities that help reinforce student learning. These activities are referenced to each module and to the text.
- Examinations – This page contains all of the examinations. Examinations are drawn randomly from a test bank. Each exam is generated anew for each student. The examinations are managed and graded automatically by The Learning Manager, a course management software application.

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Hardware/Software Issues

Hardware issues were relatively easy to agree upon. Computer requirements for the class are as follows.

Computer Requirements:

Windows 95, 486dx or faster MacOs 7.5.5 or later, Power

Processor, 8 MB of RAM or PC processor, 16 MB of RAM

more, 14.4 kbps modem or or more, 14.4 kbps modem or faster

faster, sound card, speakers.

Internet An ISP is a company that can provide the software

Service necessary for getting onto the Internet. Contact Provider your local ISP to set up your personal account. Without an ISP, it is impossible to take a class online.

Email Since it is our primary form of communication, you must have

Account an email address prior to applying or registering. Generally, your ISP will give you an email account. Please contact your ISP if you are unsure of your email address.

Java You will need a JAVA compliant browser. For the Java Compliant capable browser we recommend Microsoft Internet Explorer 3.0.2Web Browser (or higher) or Netscape Navigator 3.0.1 (or higher). You can download a current version free.

Software issues presented some interesting options. The design tool chosen for this course was Microsoft FrontPage 98. It was the software being used at Northwestern for all of the web initiatives. It was compatible with the word processing software being used at both colleges, and all development team members agreed that, even though not perfect, it did result in an acceptable product and it had a short learning curve. However, even with FrontPage98, both developers still had to rely heavily on html coding to incorporate other multimedia resources and to ensure a pleasing and consistent format.

The particular course being described in this presentation presented some unique problems as it relied heavily on sound and graphics. These problems were solved by using alternative integrated multimedia formats such as CD/ROM disks for the aural pronunciation guide and interactive graphics programs for point and click anatomical identification programs.

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Third Party Partnerships:

The element that brought these two developers together and the element that binds this particular course together is The Learning Manager. The Learning Manager was developed at Southern Alberta Technical Institute in British Columbia. Version 2.0, the most current version, is compatible with Windows 95.

At the time this project began, the Learning Manager was being used at Pellissippi and so was a known product. It brought two much needed attributes to the project. First, it served as an umbrella management system. It allowed and restricted student access to the various components of the course; it tracked student progress; and it served as a gateway to other resources such as CDs, URLs, and disks. Secondly, it served to generate randomized tests from a test bank, make those tests available to the students at the proper time, score the tests, and record the scores. One major benefit to using a software application like The Learning Manager is that it frees the instructor from scheduling and grading examinations.
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Lessons Learned:

BUS 212 is now in its second quarter of operation. Considering the distance problem, the fact that two separate institutions were collaborating on its development, and the short development calendar, the course has been relatively trouble free. However, we have learned some lessons.

1. Any assumption you have about a student's ability to understand hardware and software requirements for an online course are probably overly optimistic.
2. Student motivation is no mean issue. A mature, self-directed student will be much more successful than will one who needs constant or even intermittent attention.
3. Every online student should have a password that is required to get into the course.
4. Software packages that propose to solve all of your web publishing problems probably won't. There is no way to get around learning html.
5. Intuitiveness is in the eye of the beholder. What is perfectly clear to the developer is perfectly opaque to the student.
6. Excitement will sustain the developer early on drudgery will rear its ugly head after about three modules have been developed.
7. Student misunderstandings take on geometric proportions and multiply like rabbits when using threaded discussion groups.
8. The developer's learning curve is marked by mistakes. Trial and error are standard fare.
9. The maximum number of students a teacher can effectively deal with the first time a class is offered is probably about 15.
10. Attrition is going to be high, about 40%, unless stringent admission standards are applied.
11. Assuming an online student is relatively computer literate may be a dubious assumption.
12. Time and effort required to manage an online class of 15 students is about the same as that required to manage a traditional 5 credit-hour-class.
13. Development of an online class will take approximately 6 months if a faculty member is released ½ time.
14. Developing acceptable assessment methods will be one of the major obstacles to be overcome.
15. The course will be ever evolving due to changes the instructor wants to make, changes in technology, and unforeseen problems that must be addressed.
16. Be wary of tying the online course too closely with a particular text. If the text changes or you decide to change texts, then the entire online course has to be revised. On the other hand the online course should be referenced closely with a text and not redundant.

17. At our institution the copyright belongs to the college. Establish this or some other arrangement early.
18. Good Luck!

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APPENDIX A

Syllabus Format for WEB Based Courses

Northwestern Technical Institute

Course Name and Number

Credit Hours:	Instructor Name
Lecture Hours:	Office Location
Lab Hours:	Office Hours
Email:	Telephone:

Catalog course description:

Various disclaimer's if required:

Entry level requirements if needed:

System Requirements to take full advantage of learning materials:

Prerequisites:

Required text and other reference material including non-text based materials, including

url of online bookstore.

Recommended supplemental materials including non text-based materials

Content by week, by topic, by unit, etc. ***(called modules)***

Course competencies ***(called goals)***

Instructional Objectives (including knowledge skills) ***(called objectives)***

Learning Activities including online activities, text based activities, and CD-based activities

Course requirements – assignments, term papers, projects, etc. with due dates

Practice examinations – ***(called self-assessment)***

Evaluation procedure ***(called assessment)***

Work ethic requirement

Grading scale

Policies and procedures for course operation

Policy on academic dishonesty

Communication with instructor and bulletin board policies and procedures

Module Format

Web-Based Class

Course Name and Number

Credit Hours:	Instructor Name
Lecture Hours:	Office Location
Lab Hours:	Office Hours
Email	Telephone:

Module Name and or Number

Goal:

Objectives:

Learning Activities:

Readings, Text

Readings, Links

Pronunciation Activities

Written Assignments

Self Assessment:

Assessment:

Communication With Instructor:

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